

BOARD MEETING DATE: April 6, 2012

AGENDA NO. 37

PROPOSAL: California Fuel Cell Partnership Steering Team Meeting Summary
and Quarterly Update 

SYNOPSIS: This report summarizes the California Fuel Cell Partnership
Steering Team meeting held February 14-15, 2012 and provides a
quarterly update for the period beginning October 2011.

COMMITTEE: Technology, March 16, 2012, Reviewed

RECOMMENDED ACTIONS:

Receive and file the attached Steering Team meeting summary and quarterly update.

Lisa Mirisola
(*attended and summarized*) for
Josie Gonzales
AQMD Representative to CaFCP

CALIFORNIA FUEL CELL PARTNERSHIP

Summary of Steering Team Meeting February 14-15, 2012

California Air Resources Board – MLD Conference Room
1927 13th Street
Sacramento, CA 95811

Steering Team	(absent), AFCC
Representatives Attending:	Mary Nichols, Tom Cackette, CARB, member Carla Peterman, Tim Olson, CEC, member Reg Modlin, Chrysler, member Rosario Berretta, Daimler, representative Bob Babik, General Motors, member B.K. Ahn, Hyundai, representative Ben Knight, Honda R&D America, member Lance Atkins, Nissan Motor, representative (absent), SCAQMD Justin Ward, Toyota, member Fred Joseck, Sunita Satyapal, U.S.DOE, representative Amy Zimpfer, U.S. EPA, Region 9, member Ingo Drescher, Volkswagen, member

SUMMARY OF AGENDA ITEMS

- Justin Ward (Toyota) served as Chair, and Tom Cackette (CARB) served as Vice-Chair. Justin Ward welcomed new representatives for Volkswagen, CEC, and USEPA.
- Mary Nichols (CARB) described the adoption of amendments to the Clean Car regulations (LEV III, ZEV & CFO). Analisa Bevan (CARB) provided an update about proposed 15 day changes for Clean Fuels Outlet (CFO), and Catherine Dunwoody (CaFCP) provided an update on issues regarding the MOA process that will continue within CaFCP teams.
- Members provided short updates. Lisa Mirisola (AQMD) described \$12.5 million co-funding that was recently awarded by the AQMD Governing Board for eight projects to develop renewable energy with storage.

- Alex Keros (GM) provided a Roadmap status overview. The stages of development are pre-commercial (through the end of 2015), and early commercial (2015-2017). The roadmap goals are to address hydrogen station coverage, station performance, funding and financing, and data to evaluate progress to create a credible resource. The Roadmap should provide an infrastructure plan with logical assumptions, consider how to tackle gaps, and provide current recommendations to achieve both coverage and capacity goals. . The Steering Team approved Roadmap development goals, framework, timeline and next steps, including development of a codes and standards/permitting white paper as a companion document. The Roadmap team will provide a final document for approval at the June Steering Team meeting.
- Bill Elrick (CaFCP) presented scenarios for hydrogen station and fuel cell vehicle deployment for 2014-2015. How many hydrogen stations will automakers need by 2014 - 2015 to achieve coverage that satisfies customers? Automaker research results were provided as input to UC Davis and UC Irvine modeling, with iterative discussions. Tim Brown (UCI) described the analysis using the UCI STREET model. Assumptions in modeling include: establish stations in cluster areas, grow into a network, then satisfy desirable destination and connector stations. Gasoline stations are generally four minutes apart in California suburban areas, and assuming travel time between stations determines how many stations are needed in an area. Assuming stations are six minutes apart results in needing 68 total stations by the end of 2015 to prepare for early commercial market launch.

Tyson Eckerle (EIN) presented H2 station cash flow modeling results for various scenarios.

- Nico Bouwkamp (CaFCP) led a discussion about funding support approaches to achieve stations coverage requirements by 2015. Cash flow model could entice new money, profit earlier, and place boundaries on investment and timeframe. Need funding secured by late 2012 to achieve station coverage by end of 2015.
- Tim Olson (CEC) described the current Public Opportunity Notice of \$18.7 million available from AB 118. \$10.2 million of the \$18.7 million must be encumbered by the last business meeting before June 30, 2012. The AB 118 proposed Investment Plan for 2012-13 needs input from CaFCP and members in public record to compete for \$100 million total AB118 funds, which will be distributed to support multiple fuels. The Integrated Energy Policy Report was just approved; it describes gasoline consumption dropping for last 4 years which is expected to continue.
- The Steering Team requested further cash flow modeling scenarios, including a rapid depreciation schedule and consideration of low volume stations only, assuming upgrades will be funded by owners when there is demand. The Steering Team assigned this effort to the Value Proposition team.

- The Decisions and Assignments from the October 2011 CaFCP Steering Team meeting were approved, with dates corrected.
- Catherine Dunwoody reviewed the CaFCP progress and budget for 2011. The budget overall is balanced: National Automotive Center dropped membership, but CaFCP gained other revenue and cut expenses to balance. Annual highlights for 2011 will be posted on Member Resources.
- Sunita Satyapal (DOE) provided an update on DOE activities via teleconference. There will be an Annual Review during May 14-18, 2012 in Virginia. DOE is preparing an inaugural Newsletter. Technology Validation and Market Transformation solicitations are planned, check <http://www.Hydrogenandfuelcells.energy.gov>. International data collection effort over next five years will increase visibility and continue NREL efforts. They are planning a request for information for innovative designs like fuel cells as APUs or range extenders.
- Chris White (CaFCP) provided an overview of the new project team structure. The Working Group (WG) holds meetings to review work produced by the teams. Next WG meeting is March 7-8 in Irvine.
- Catherine Dunwoody reviewed the 2013 – 2016 Statement of Intent (SOI). The 2013-2016 SOI is to be signed by all full and associate members. The SOI provides the collaborative framework and vision to achieve CaFCP strategic goals during the next phase. CaFCP staff was directed to update the SOI based on discussion and implement review and signature process.
- Jennifer Hamilton (CaFCP) reviewed the Safety Statement of Principles. For combined CaFCP activities, this serves as an umbrella. It used to cover the entire facility in West Sacramento, but now there are some non-CaFCP tenants in the building. There is a safety contractor that reviews the CaFCP tenant spaces within the facility each year. The Steering Team approved the updated Safety Statement of Principles which will be implemented with the SOI process.
- Jamie Levin (AC Transit) presented the Bus Team White Paper which is the vision of an industry-wide bus coalition. The white paper proposes funding for four to five regional centers deploying 40-50 buses (2013 – 2016), including two in California. The paper shows cost reduction goals to less than \$1 million per bus for 400 bus volume production. The Steering Team approved the proposal to support the National Fuel Cell Bus white paper as presented and incorporate the goals into CaFCP's vision and roadmap, support centers for excellence in California, educate federal and state governments on the value of the bus program, incorporate Bus

Program goals in CaFCP messaging, support California funding initiatives to finance fleet and infrastructure investments, and continue CaFCP Bus Team work to develop bus fueling protocol, support workshops and conduct outreach.

Catherine Dunwoody led the discussion on membership recommendations from the membership committee.

- CaFCP members will continue to develop strategy and plan for achieving funding and hydrogen station needs. The process will leave the door open so that non-CaFCP members can join or rejoin the discussion once they are ready to make a commitment.

The next CaFCP Steering Team meeting is scheduled for June 11-12, 2012 in Diamond Bar.

Additional information about the California Fuel Cell Partnership can be found at <http://www.fuelcellpartnership.org>

Attachments

CaFCP Quarterly Activity Report: October – December 2011

CaFCP Quarterly Update October-December 2011

Background

The California Fuel Cell Partnership is a unique collaborative of auto manufacturers, energy companies, fuel cell technology companies, and government agencies, including SCAQMD. This report summarizes CaFCP activity in or related to Southern California, for October-December 2011.

Between 2008 and 2012, CaFCP's focus is on building the foundations for the commercialization of hydrogen fuel cell vehicles, to meet the following goals:

1. Establish and maintain a common vision for the market transition in California
2. Identify hydrogen fuel needs by year and location
3. Provide a forum to match fueling station partners
4. Facilitate an ongoing dialogue to determine future hydrogen fueling stations
5. Maintain an accurate database of existing and planned stations in California
6. Prepare communities in California by educating local officials, including fire professionals, about hydrogen and fuel cell vehicles

The following activities are examples of CaFCP's work toward achieving these goals.

Public Events and Conferences

National Fuel Cell Bus Workshop at the American Public Transportation Association (APTA) 2011 Conference and Expo, October 2-5, 2011 in New Orleans, LA. Nico Bouwkamp supported DOT FTA and the Center for Transportation and Environment with development of the agenda, invitation speakers/panelists, and inclusion of NFCBW with APTA Expo 2011. In addition, Nico moderated the hydrogen infrastructure session titled *Making the Business Case: Industry's Roadmap for Adoption (Fueling)*.



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Fuel Cell Seminar, October 31st – November 3rd, 2011 in Orlando, FL. Jackie Birdsall represented CaFCP at the seminar, presented SOSS in a session and HVAS in a poster session. The presentations resulted in good recommendations and recognition of the work being done at the partnership, expanding beyond the projects presented. Having a representative attend was also beneficial because of the capability to educate attendees on the status of fuel cell vehicles and hydrogen stations in California.



IPHE- International Partnership for a Hydrogen Economy, November 14-17, 2011. Hamburg/Berlin, Germany. Catherine Dunwoody represented CaFCP at the November 17th member roundtable. The goal of the roundtable was to facilitate and stimulate dialogue between industry stakeholders and government representatives of IPHE countries to gain insights on the status of hydrogen and fuel cell technology, the progress made today and the remaining commercialization challenges.



Emergency Responder Training

Emergency responder training and fire community outreach are important aspects of the goal to support member fleets and stations. Workshops given by CaFCP include:

- California Automotive Teachers Fall Conference- October 22, Rio Hondo College
- Nor Cal Auto-X- November 2-Sacramento
- CSULA hydrogen station- November 8- Los Angeles
- Newport Beach Fire Department- November 15, 17 & 18- Newport Beach
- So Cal Auto-X- November 30- Anaheim

Date	Southern California Training	Northern California Training	Out of State	Total
Q2 2010	175	15	30	220
Q3 2010	294	110		404
Q4 2010	196			196
Q1 2011	298			298
Q2 2011	224	36	11	271

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Q3 2011	30	15	5	50
Q4 2011	211	91	6	308

***Ca Automotive Teachers Conference,
Rio Hondo College-October 22, 2011***

Jennifer presented to automotive teachers from around the state about hydrogen, FCVs, stations and safety. Jordan supported with a Daimler B-Class F-Cell for static display.



Nor Cal Auto-X, Nov. 2, 2011

FS3, Fire Service Specification & Supply, invited Jennifer to present at the first annual Nor Cal Auto-X in Sacramento. As with other Auto-x events, the 68 attending firefighters appreciated the information. She made good contacts and discussed a January 2012 workshop. Of the attendees, 66 six were Northern California firefighters and captains.



CSULA ER Workshop, Nov. 8, 2011

Virgil Seaman and Ray Shackleford of CSULA coordinated an ER Workshop in conjunction with the new hydrogen fueling station on campus. Toyota supported with a vehicle for static display.



***Newport Beach FD ER Workshops,
November 15, 17, 18, 2011***

Jennifer presented to a total of 113 firefighters, mostly from Newport Beach with some from Long Beach and Laguna Beach FDs. There were a total of nine sessions over three days of ER workshops, with three classes each day. Jim Martin of Shell Hydrogen also presented about the NB fueling station and the Fletcher Jones Mercedes Benz dealership supported with their demonstration B-Class F-Cell.

NO PICTURE AVAILABLE

So Cal Auto-X, November 30, Anaheim

This is the second year for this event, and the second year of Jennifer presenting CaFCP information on FCVs, hydrogen safety and emergency response information. Toyota and Honda supported with FCVs and other alt fuel vehicles for static display. A total of 108 attended.



Technical Program Updates

CaFCP has several technical programs with teams that meet regularly to work on interoperability issues, such as hydrogen quality, fueling systems, station testing, and public access. This work helps achieve the goal of enabling a California fueling infrastructure.

CaFCP Bus Team

The Bus Team participants met on Thursday December 8, 2011 at San Francisco MTA. During this meeting, Ballard and UTC Power gave updates about their current fuel cell systems for buses, and CARB discussed the zero emission bus regulation. This regulation is currently under review and CARB staff is collecting input and information about the current state of FCB technology for use in a proposal for modifications to the current language during the July 2012 CARB Board hearing. In addition, the FCHEA industry white paper on the commercialization of FCBs was presented, and how it applies to California. To read the FCB commercialization white paper, go to:

http://cafcp.org/sites/files/Building%20a%20Commercially%20Viable%20National%20Fuel%20Cell%20Transit%20Bus%20Program.FINAL_v10.03-25-11.pdf

Other participants gave updates as well:

- EBus: a new 40-foot Gillig battery dominant FCB is under development, which is expected to be priced near \$1M
- Hydrogenics: decreased the volume and increased the power output of their 30kW fuel cell unit, for more information: www.hydrogenics.com/fuel/urban_transit_buses

Infrastructure Development

Regional Education

CaFCP staff presented to the CCSE (California Center for Sustainable Energy) on December 14th regarding FCV and hydrogen station rollout plans. Based in San Diego, CCSE already plays an important role in educating San Diego stakeholders on alternative fuels and energy efficiency. In order to promote early consumer adoption of FCVs in the South Coast air basin it will be important that FCV drivers can get fuel in destination cities close by like San Diego and Santa Barbara. CaFCP expects this initial meeting with CCSE will lead to greater collaboration in the future.

Community Development

In an ongoing effort to make contacts and raise FCV and hydrogen awareness in key early adopter communities, CaFCP attended several Santa Monica stakeholder meetings. On November 29, CaFCP participated in the sustainability bill of rights meetings at SM City College where citizen activists and environmental leaders discussed activities that would enhance future environmental responsibility in the SM community.

CaFCP staff also met Santa Monica council member Terry O'Day at a German E-Mobility conference on October 26 in Westwood which prompted further discussions on how to grow FCV acceptance at all levels of SM stakeholders. Meetings with key SM stakeholders are expected to follow, with the support of Council member O'Day.

CaFCP met with SoCal Gas at the Coalition for Clean Air Natural Gas Vehicle Conference on November 29 to discuss future opportunities for collaboration and to draw SoCal Gas executives' awareness to several distributed SMR hydrogen stations that were operating/being commissioned in South Coast basin with NG as feedstock.

Hydrogen Vehicle Authorization System (HVAS)

The HVAS team was formed to identify the communication technology (or technologies); to specify what information would be transmitted; and to determine the scope and purpose of the system to identify a hydrogen vehicle as authorized to fuel at a station. The team identified RFID as the means to communicate the HVAS signal for the pilot demo, and the system was installed in Torrance. The team has collected demonstration data and will be handing the project off to SAE with a white paper in February. All resources related to the HVAS project are posted at <http://cafcpmembers.org/membersonly/technical-programs/hvas>.

Santa Monica SWAT Team

The Santa Monica SWAT team is focused on accelerating infrastructure deployment in the SC air basin, specifically addressing a shortage of fueling stations in the Santa Monica/West LA areas. Participants include the SCAQMD, CARB, CEC, automotive manufacturers, and CaFCP staff. The group is working with creative, outside the box approaches to infrastructure challenges: funding, permitting, partnering, etc.

Hydrogen Quality

HQSA: DMS provided an update on activities at the December, 2011 CaFCP Working Group meeting in Sacramento. CaFCP supported updates of hydrogen quality in NIST handbooks to be presented at the July, 2012 National Conference on Weights and Measures.

Codes and Standards

CaFCP staff support efforts for multiple codes and standards, including: ASTM, ASME, CSA, DMS, ISO, NIST and SAE. The staff provides liaison reports to the standard development organizations, ensuring collaboration with, and feedback to, members.

ASTM: Nine work items have been published or are currently in publishing. The FTIR method D7653 is being evaluated via round robin testing by nine laboratories. Two more methods are anticipated to be published by Q1, 2012 led by CaFCP. The last remaining method to support the SAE and ISO hydrogen quality standards has gone to ballot.

NIST: The hydrogen fuel quality specification has been updated to reference SAE J2719 with the support of the USNWG and CaFCP and will be voted on at the July NCWM.

SAE: J2601 has been published as a TIR and is available for purchase on the SAE website. J2601 is working towards a standard, and J2719 is now published as a standard. The subcommittee for SAE J2601/2 "Heavy duty gaseous hydrogen vehicle fueling standard," which mainly focuses on hydrogen bus fueling standard development, met for its initial meeting on November 15, 2011.

Media Outreach, Legislative Outreach, Website Activity and Materials

Outreach activities show how CaFCP works toward the goal of being a leading source of information. The media and outreach position was relocated to Southern California, providing greater outreach potential for the region.

CaFCP Website and Social Media

In 2011, CaFCP continued to engage audiences through social media campaigns, actively utilizing new media tools in blogs (web logs), Facebook, Twitter, CaFCP's public website and monthly subscriber newsletter

www.cafcp.org	October-11	November-11	December-11
Number of visits	26,754	29,566	26,065
Average time spent on site	1:55	2:14	2:05
Most visited pages	Home page FAQ Station map Vehicle progress Station progress	Home page Station map FAQ Vehicle progress Station progress	Home page FAQ Station map Vehicle progress Station progress
Most searched keywords on Google to land on CaFCP website	california fuel cell partnership where does hydrogen come from come from what language did hydrogen come from cafcp where did hydrogen come from	where does hydrogen come from come from california fuel cell partnership cafcp difference between fuel cell and battery hydrogen fuel stations california	where does hydrogen come from come from california fuel cell partnership difference between fuel cell and battery cafcp where did hydrogen come from
Most searched keywords on cafcp.org search engine	AC Transit career Jennifer Hamilton shell what language did hydrogen come from	what is the environmental impact of using nuclear fusion fuel action plan bus fueling collaborative hydrogen	fuel cell 50,000 anti trust apple Bill Elrick
Most referred websites	google.com hydrogenhighway.ca.gov jalopnik.com bing.com yahoo.com	google.com hydrogenhighway.ca.gov bing.com en.wikipedia.org yahoo.com	google.com hydrogenhighway.ca.gov bing.com en.wikipedia.org yahoo.com

FACEBOOK	October-11	November-11	December-11
New likes	30	17	18
Lifetime likes	1,833	1,843	1,853

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Post Views*	2,689	3,035	2,313
Post feedback*	10	14	12

TWITTER	October-11	November-11	December-11
Followers	483	492	501
Tweets	2812	2911	3004

Legislative and Environmental Outreach

MEETING	DATE	MET WITH
CaFCP site visit and ride & drive with California Energy Commissioner Carla Peterman and Advisor Jim Bartridge	11/22/2011	California Energy Commissioner Carla Peterman and Advisor Jim Bartridge
California Senate Transportation and Housing Committee	10/24/2011	Senators DeSaulnier, Pavley, Kehoe and Rubio
Michelle Leinfelder	10/10/2011	Michelle Leinfelder 3 science fellow colleagues
Carla Peterman and advisor Jim Bartridge – Introductory meeting	10/03/2011	California Energy Commissioner Carla Peterman and Advisor Jim Bartridge

Upcoming CaFCP Activities for Q1, 2012

- January—DOE ER training, LA City FD
- February—Firehouse World
- February—Western Petroleum Marketers Association Expo